

**SONY**

# Videodisc Player

LDP-1500

## Operating Instructions

**Lasermax**



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Use  videodiscs

This player is to be used exclusively with the NTSC color system.  
PAL/SECAM videodiscs cannot be used in this player.



***LaserVision***

CED and VHD type videodiscs cannot be used in this player.

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## CAUTION

The use of optical instruments with this product will increase eye hazard.

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# Features

## **No physical contact between pick-up system and disc**

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A laser beam acts as the signal pick-up for contact-free playback and no wear on your valuable videodiscs. The audiovisual pit pattern is recorded below the surface of the videodisc for safe handling. There is no more need to be constantly on your guard against fingerprints and dust.

## **Computer control**

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The built-in microprocessor controls almost all the functions of this player. Various functions, such as search and repeat, are possible with an external computer through an RS-232C interface connector.

## **High speed access**

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Any frame on the disc can be located within 2.5 seconds.

## **Remote control operation**

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By using the RM-2001 optional remote control unit, not only the operation of the main buttons on the front panel but also search and repeat operation are remotely controlled. Remote control operations are possible in both wired and wireless modes.

## **Automatic front loading**

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Videodiscs are inserted in the front of the LDP-1500. This represents a great saving of space when compared with top loading models.

## **Black burst video out signals in the search mode**

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The signal output from the computer are superimposed over the video-disc picture so that they can even be seen in the search mode.

## **Screw-less mechanism for transportation**

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This new mechanism eliminates the need to tighten special screws to fix the laser pick-up before transporting the videodisc player.

# Precautions

## On safety

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- Operate the unit with 120 V AC, 50/60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time.
- To disconnect a cord, pull it out by the plug. Never pull the cord itself.

## On installation

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- Avoid placing the player in a location subject to:
  - high humidity
  - high temperature
  - excessive dust
  - mechanical vibration
  - direct sunlight
- Allow adequate air circulation to prevent internal heat buildup. Do not place the unit on surfaces (rug, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

## On operation

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- Do not operate the unit right after having transported it from a cold location directly to a warm location or in a room where the temperature rises suddenly because moisture may condense in the operating section of the unit. Wait for about an hour before turning the power on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the disc may be damaged. Therefore remove the disc immediately when there is a possibility of moisture condensation and no picture is obtained.  
To evaporate the moisture rapidly, leave the player turned on without a disc loaded.
- Remove the disc from the compartment after playing it, if the unit will not be used for any length of time. Do not transport the set with a disc in place.
- To open or close the disc compartment, press the OPEN/CLOSE button. Do not pull or push the disc compartment forcibly.
- When the disc compartment is in the open position, do not press down on it strongly, or place heavy objects.



## On cleaning

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Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which may damage the finish.

## On packing

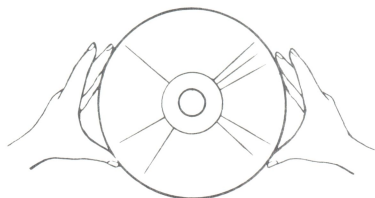
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Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

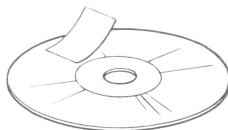
If you have any questions about this unit, contact your authorized Sony service facility.

# Notes on Handling Videodiscs

Handle the disc by its edge, and keep the disc clean.



Do not stick paper or tape on the disc surface.



Not this way

Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a parked car in direct sunlight which can result in a considerable rise in the temperature.

Before playing, clean the disc with a soft cloth.

Do not use solvents (such as benzine or thinner) or commercially available cleaners or anti-static sprays intended for audio discs.


After playing, store the disc in its case.

# Tips on Video Discs

## Types of Video Discs

### CAV (constant angular velocity) disc


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The CAV disc always rotates at a constant speed of 1800 r.p.m. and the laser beam moves from the inner part of the disc to the outer. Up to 30 minutes of playback (54,000 frames) is possible on one side of the disc. Each frame of the playback picture is recorded on one track and is reproduced in one rotation. The frame number is recorded on the track. Flexible playback operation such as variable speed playback, repeat play, or computer-controlled playback is possible using the frame numbers as reference.

### CLV (constant linear velocity) disc

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With the CLV disc, the rotational speed varies from 600 r.p.m. to 1800 r.p.m. so that a constant linear velocity is maintained. The laser beam moves from the inner part of the disc to the outer as with CAV discs. Playback of up to one hour is possible on one side of the disc, although only normal play, scan and search operations are possible. The elapsed playback time or the chapter number being played can be displayed on the monitor screen. Searches to the beginning of chapters or specified time codes is possible.


#### \*1) Frames

The CAV discs have up to 54,000 "frames" which are numbered in sequence. One frame is recorded on one track, that is, a frame is played back with one rotation of the disc. You can search for a particular frame quickly or repeat a particular sequence of frames.

#### \*2) Picture stop

When the player detects this code, the playback enters the still mode. This code may be ignored in the scan and search modes.

#### \*3) Chapters



There are CAV and CLV discs on which "chapters", as the chapter of a book, are pre-recorded. If a chapter number is displayed after a frame number has been displayed (on a CAV disc) or after playback time is displayed in minutes (on a CLV disc) when you change the display mode, the data are pre-recorded in chapters.

You can easily search for a particular chapter and play it back repeatedly.

#### \*4) Lead-in/Lead-out

When the player detects the lead-out code, it returns to the beginning of a disc, detects the lead-in code and repeats playback or stops at the beginning of the program area according to the AUTO REPEAT switch setting.

When the player detects the lead-in code or lead-out code in SCAN mode, the same result will be obtained.

## Comparison of Sony Video Disc Code Types

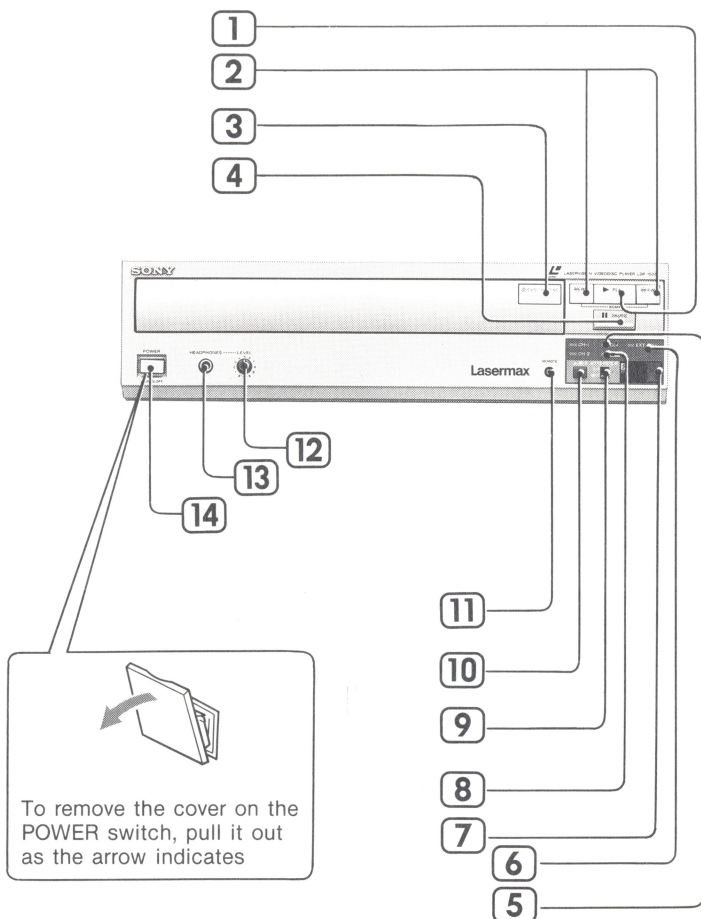
type	purpose	location on disc
<b>I. CAV Discs</b>		
Vertical blanking (partial listing)		
—frame number*1) (picture numbers)	frame access	all vertical blankings
—picture stop*2)	automatic stop on a frame during “play” and “slow” modes	designated vertical intervals
—chapter number*3)	divide content into chapters	designated vertical blankings
<b>II. CLV Discs</b>		
Vertical blanking		
—time code number	time code access	all vertical blankings
—chapter number	divide content into chapters	designated vertical blankings
<b>III. CAV/CLV Discs</b>		
Vertical blanking		
—Lead-in*4)	locate the beginning of the program on a disc	designated vertical blankings
—Lead-out*4	locate the end of the program on a disc	designated vertical blankings



capacity	customer's creation	encoding method
00001 to 54000	not available	added automatically during mastering
up to 54000	list of time codes on a master tape to have stops	added during mastering
00 to 79; min. chapter = 30 tracks	list of first/last time codes on a master tape of all chapters	added during mastering
00 hr 00 mins 00 sec to 01 hr 00 mins	not available	added automatically during mastering
00 to 79; minimum = 30 tracks	list of first/last time codes on a master tape of all chapters	added during mastering
—	not available	added during mastering
—	not available	added during mastering

# Parts Identification





## Front Panel



**① PLAY button and indicator**

Press this button for normal playback. The indicator blinks while loading or unloading a videodisc.

**② SCAN button**

Keep one of these buttons depressed for high-speed playback (about 100 times normal speed). The  button initiates scanning in the forward direction, and the  button in reverse. When the button is released, normal speed playback will be resumed. With the chapter number displayed on the monitor screen, chapter stop at the beginning of the present chapter (when the  button is pressed) or at the beginning of the next chapter (when the  button is pressed) is possible. The player enters the still mode with a CAV disc, and the normal playback mode with a CLV disc.

**③ OPEN/CLOSE button**

Press to open the disc compartment and again to close it. The compartment will also close automatically when it is pushed lightly. Be sure to press the center of the compartment for proper operation.

**④ PAUSE button and indicator**

Press this button to set the player to the pause mode. A still picture is displayed for CAV discs. No picture will be displayed on the screen if the disc being played is CLV (muted state). The pause indicator lights up when the video disc is in the pause mode. The indicator blinks if the disc compartment movement is interrupted while being opened or closed.

The pause indicator also lights up when the player is placed in still or stop mode using the RM-2001 optional remote control unit.

**⑤ CLV disc indicator**

Lights when the disc being played back is CLV. This indicator is not illuminated for CAV discs.

**⑥ EXT CPU indicator**

Lights when the player is controlled by an external computer through the RS-232C interface connector. In this mode, pressing the function buttons (PLAY, PAUSE, SCAN and AUDIO) on the player and optional remote control unit has no effect. The videodisc player will automatically respond to commands given by the external computer.

**7 REMOTE SENSOR and indicator**

The sensor on the right acts as a receptor for infrared control signals from the optional RM-2001 remote control unit. When a button on the RM-2001 is pressed, the red lamp on the left blinks to indicate command detection.

**8 CX indicator**

The indicator will light up when a video disc containing a special code for activation of the CX Noise Reduction System\* is played.

\*CX Noise Reduction System

This system is employed to improve the signal-noise ratio and enlarge the dynamic range of audio signals recorded on video discs.

CX is a trademark of CBS.

**9 AUTO REPEAT ON/OFF switch**

When this switch is ON, the videodisc will be automatically played again from the beginning when it reaches the end. The OFF position means that playback of the videodisc will not be repeated. Like the other controls on the front panel, this switch has no effect when the player is controlled by an external computer (indicated by illumination of EXT CPU indicator).

**10 AUDIO signal selector and indicator**

Each videodisc has two audio channels: channel 1 and channel 2. When the player is turned on, both channels are selected and the CH-1 and CH-2 indicators will light up. Pressing the selector once will select audio channel 1 and pressing it again will select audio channel 2. The original state (both channels selected) can be restored by pressing the selector once more.

**11 REMOTE connector**

This special mini jack allows for wired connection of the optional RM-2001 remote control unit. Use of a wire allows for remote control from locations which are not in line of sight with the LDP-1500.

**12 LEVEL control**

Turn to adjust the volume of the headphones. Rotation to the right increases the volume.

**13 HEADPHONES jack (Stereo phone jack)**

Headphones for audio monitoring are connected here. The volume is adjusted with the LEVEL control.

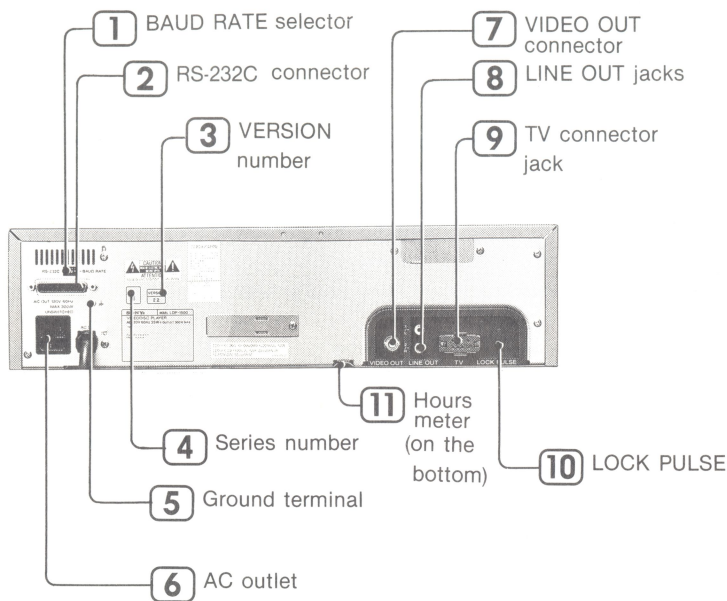
**14 POWER switch**

Press to turn on the power of the player. The CH-1 and CH-2 indicators function as power indicators. Press the button again to turn the power off.

This switch is set to ON at the factory. Normally, do not remove the cover.



## Rear Panel



### 1 BAUD RATE selector

Select the speed at which data is transmitted over the RS-232C line. The baud rate can be set to 9,600, 4,800, 2,400, or 1,200 baud. Be sure that the selector is matched to the baud rate of the external computer. The factory setting is 1,200 baud.

**BAUD  
RATE**

up

down

1

2

3

4

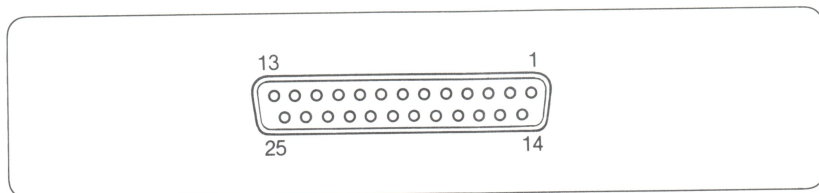
Switch setting				Baud rate
1	2	3	4	
u	d	d	d	1,200
d	u	d	d	2,400
d	d	u	d	4,800
d	d	d	u	9,600

u: up  
d: down

## ② RS-232C connector

Standard 25-pin RS-232C interface connector for communication with an external computer.

### Pin assignment



Pin No.	Signal
1	FG (Frame ground)
2	T×D (Transmit data)
3	R×D (Receive data)
4	RTS (Request to send)
5	CTS (Clear to send)
6	DSR (Data set ready)
7	GND
20	DTR (Data terminal ready)

Each signal conforms to the RS-232C specifications.  
(Output level ON: more than +5V, OFF: less than -5V)

Note: Check the RS-232C in pin assignment of the external computer to be connected. There is a modem mode and terminal mode for pin assignment. The RS-232C pin assignment for LDP-1500 is for the terminal mode.

## ③ Version number

Shows the ROM version on the player.

## ④ Series number

This number distinguishes if an optional board is installed or not.

## ⑤ Ground terminal

To reduce hum, connect this terminal to an earth ground with a ground wire.

#### 6 AC outlet

This outlet supplies ac power to other video equipment whose power consumption is no more than 1.7 A. Power is always supplied to the connected equipment regardless of the power switch setting of the player.

#### 7 VIDEO OUT connector

BNC connector for the output of composite video signals.

#### 8 LINE OUT jacks

Phone jacks (RCA-type) for audio signal output.

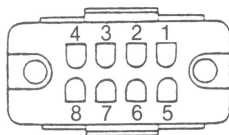
The audio signals of channel 1 (CH-1) are output from the 1/L jack, and the signals of channel 2 are output from the 2/R jack.

#### 9 TV connector

8-pin connector for video and audio signal outputs.

If your monitor TV has a connector of the same type, connect the cable (with the square 8-pin plugs) to this connector to supply the video and audio signals to the monitor TV with a single cable.

#### Pin assignment of the connector



Pin No.	Signal	Pin No.	Signal
1	Audio	5	AUDIO (G)
2	Video	6	VIDEO (G)
3	NC	7	NC
4	NC	8	NC

NC: no connection

**⑩ LOCK PULSE jack**

Special mini jack to supply the lock pulse signal.

**⑪ Hours meter (on the bottom)**

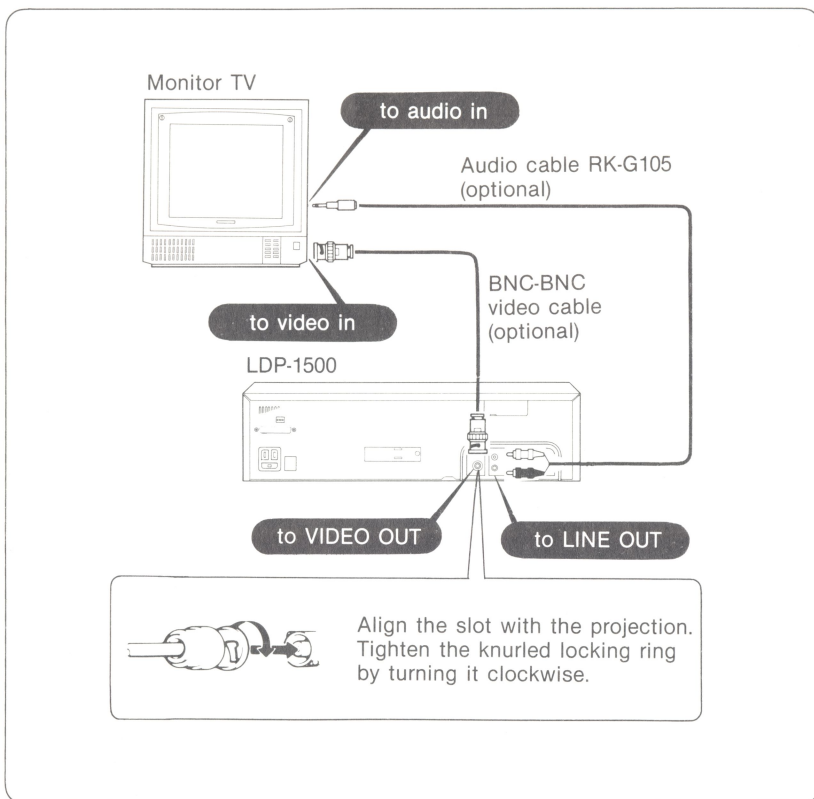
Indicates the accumulated time for which laser diode is on. Each segment shows 1,000 hours, up to a total of 10,000 hours.



# Connections

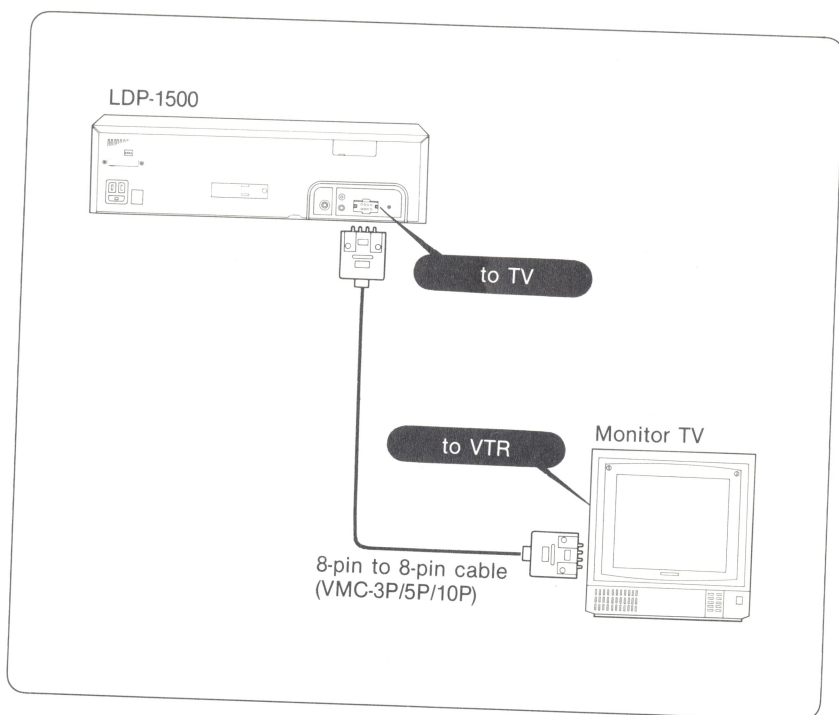
If your monitor has a 8-pin VTR connector, video and audio signals can be connected with a single cable. If the monitor is not equipped with an 8-pin connector, use a BNC-BNC coaxial cable for the video signal connection and a cable with phono plugs for the audio signal connection.

## When the monitor is not equipped with an 8-pin connector





- To play back the audio on a stereo system, connect the LINE OUT connectors to the auxiliary (or tape or tuner) inputs of the amplifier.
- Use the red plug of the audio cable for the right channel (R) connection.

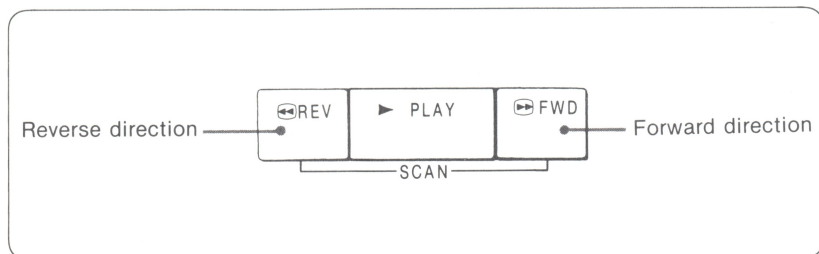
When the monitor is equipped with a 8-pin connector



# Various Playback Modes

## High Speed Playback (CAV and CLV)



Keep one of the SCAN button pressed. The  button quickly advances the picture in the forward direction and the  button advances it in reverse. When you release the button, normal playback will be resumed.



**Note:** The picture of a CLV disc may be distorted in this mode.

## Chapter Stop (CAV or CLV disc with chapter codes)

Display the chapter number by pressing the INDEX button on the remote control and then press either of the SCAN buttons.

The  button locates the beginning of the next chapter and the  button locates the beginning of the chapter being played back. When the chapter stop activates, the still mode is obtained with a CAV disc and normal playback will be resumed with a CLV disc. If you want to continue the SCAN mode, press the button again.

### Note

Chapter stop code is not provided according to a type of video disc.

# Search and Repeat Operations

Search and repeat operations are activated by the respective commands from an external computer or by operating the RM-2001 remote control unit. For detailed instructions, refer to the LDP-1500 interface manual or to the RM-2001 operating instruction manual.

The use of these operations differ according to whether a video disc is CAV or CLV.

With CAV disc, enter the frame number. If the chapter number is pre-recorded, the number can be used to perform a search and a repeat operation of the desired chapter on a disc. In the search operation, when a designated frame or the beginning of the chapter number is located, the player is automatically set to display the still picture. In the repeat operation, the desired playback mode can be obtained.

With CLV discs, enter the time number. If chapter numbers are pre-recorded, these numbers can also be used. When the beginning of a designated time number (chapter) is located, the player is set to the normal playback mode.

## **Note**

If you assign an invalid number to be searched, the search operation may continue about 10 seconds. The player will then enter the still mode with a CAV disc or the play mode with a CLV disc. The still mode (for CAV video discs) or the stop mode (for CLV video discs) is entered at the beginning of the program area when the player detects lead-in, and at the end of the program area when the player detects lead-out.



# Notes on Operation with the RM-2001

The operating instructions of the RM-2001 contain a description of remote control operations common to Sony videodisc players.

The following differences in operation must be noted when the RM-2001 unit is used with the LDP-1500. Be sure to read the following before use of the RM-2001.

## **INDEX button**

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Pressing this button activates the index function and causes to display the operating mode of the player and number mode (frame or chapter number\* for CAV and time or chapter number for CLV). This indication disappears if the button is pressed again.

Press the MODE button after pressing the INDEX button to toggle the display between the frame and chapter (or time and chapter) indication.

\*This is displayed only when disc being used has pre-recorded chapter numbers.

## **MODE button**

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This button is used to toggle the displayed number for search, repeat and index function.

## **MENU button**

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Pressing this button starts playback from the beginning of the program area.

## **Search/repeat operations with CLV video discs**

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The time number displayed on the screen takes the form: hours, minutes, and seconds (if they are pre-recorded).

# Troubleshooting

Many apparent malfunctions may be caused by a misoperation or an oversight. If any difficulty arises in operation, check through this list of symptoms and causes. Should the difficulty persist, unplug the unit and contact your authorized Sony service facility.

- The following list includes troubles when the RM-2001 optional remote control unit is used.
- An RS-232C interface cable and an IEEE-488 cable must be disconnected when you check through this list.

Symptom	Cause
The disc compartment is ejected automatically	<ul style="list-style-type: none"><li>• The video disc is not placed correctly on the tray.</li><li>• The video disc is scratched or has dirt on its surface.</li><li>• The disc is upside down. The side to be played back should be placed facing down.</li></ul>
The disc compartment does not come out.	<ul style="list-style-type: none"><li>• Power is not turned on.</li></ul>
Pressing the PLAY button has no effect.	<ul style="list-style-type: none"><li>• An external computer is connected to the player.</li><li>• The indicator on the PLAY button is blinking. Wait until this indicator goes off.</li><li>• The indicator on the PAUSE button is blinking. Press the OPEN/CLOSE button.</li><li>• The SEARCH or REPEAT button on the RM-2001 has been pressed when the picture is muted by the STOP button. Clear the search or repeat mode with the CL button or continue the search or repeat operation to the end.</li></ul>
Picture is not displayed, although the PLAY indicator lights.	<ul style="list-style-type: none"><li>• The monitor TV is not turned on.</li><li>• The connection of the monitor TV is not correct.</li><li>• The input selector of the monitor TV is not set correctly.</li><li>• The disc is upside down. The side to be played should be facing down.</li></ul>

Poor picture quality	<ul style="list-style-type: none"> <li>• Connection of the monitor TV is not correct.</li> <li>• An equipment is near the player to transmit noise and affect the picture quality of the video disc.</li> <li>• The disc to be played back has a scratch or dirt on the surface.</li> <li>• There is moisture condensation in the videodisc player.</li> </ul>
No audio	<ul style="list-style-type: none"> <li>• The speaker system or TV monitor is not connected correctly.</li> <li>• The volume setting of the amplifier or TV monitor is too low.</li> <li>• Audio is muted in all modes other than normal playback.</li> </ul>
Playback of a certain section of the disc is not possible.	<ul style="list-style-type: none"> <li>• The video disc is scratched or has dirt on a section of it. Press the FWD button to advance playback past this point.</li> </ul>
A certain section of the video disc cannot be located by searching.	<ul style="list-style-type: none"> <li>• The video disc is scratched or has dirt on a section of it. Replace the defective disc with another one.</li> </ul>
The RM-2001 remote control unit does not operate	<ul style="list-style-type: none"> <li>• The batteries of the remote control unit are dead when the unit is used in the wireless mode.</li> <li>• Improper connection to REMOTE connector when the remote control unit is used in the wired mode.</li> <li>• When used in the wireless mode (infrared), the remote control unit is not pointed at the REMOTE SENSOR, or something is between the remote control and sensor.</li> <li>• An external computer is connected to the player.</li> </ul>

<p>The picture is muted and the PLAY indicator is not lit.</p>	<ul style="list-style-type: none"> <li>• The PAUSE button has been pressed (with a CLV disc).</li> <li>• A search operation is taking place. If the specified number is invalid (not on the disc) or if a defective disc prevents the proper section from being found, the player remains in the search mode for about 10 seconds.</li> <li>• The playback goes to the end of a disc and stops when the AUTO REPEAT switch is set to OFF.</li> </ul>
<p>Fast forward or reverse playback is not possible.</p>	<ul style="list-style-type: none"> <li>• A CLV disc is used.</li> </ul>

# Specifications

## Playback system

Disc format	Laser Vision
Pick-up method	Laser beam (reflective)
Laser	Diode laser ( $\lambda = 7800\text{\AA}$ )
Emission duration	Continuous
Laser output	0.4 mW* max.
Video disc	12" and 8"
Maximum playing time	CAV: 30 min./side CLV: 60 min./side
Spindle revolution	CAV: 1800 r.p.m. CLV: 1800 to 600 r.p.m.
Access time	CAV: 2.5 sec (by frame) 10 sec (by chapter) CLV: 10 sec

## Video

Signal	EIA standards, NTSC colour
Output	1.0 V p-p, 75 ohms unbalanced, sync negative.
Resolution	Color: 400 lines

## Audio

Output	Line out: 0 dBV (1 kHz, 100% MOD, load impedance 47 kilohms) Headphones: -20 dBV and more (8 ohms)
Signal-to-noise ratio	CX ON: 70 dB and more CX OFF: 56 dB and more
Frequency response	20 Hz to 20 kHz

## Video/Audio (TV connector)

Video	1.0 Vp-p
Audio	0 dBV (1 kHz, 100% MOD, load impedance 47 kilohms) load impedance 2 kilohms and more

Design and specification subject to change without notice.

\*This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.



# Videodisc Player

LDP-1500